

Anna Connell
Simply Oranges

The purpose of this investigation is to determine the ideal temperature to store oranges to retain the greatest amount of vitamin C. I hypothesized that if the temperature profile is varied, then the vitamin C content will be greatest in the oranges stored in the refrigerator. Research indicates that if fruit is stored in extreme temperatures, the vitamin C level would be reduced.

The experiment involved storing the oranges in 5 different temperature profiles for one week, juicing the oranges, then storing them at room temperature for one more week. A titration process was used to determine the vitamin C level. During the titration, a sudden color change was observed as the potassium iodide solution dripped into the orange juice solution. When there was no more color change observed, the process of titration was finished for that sample and the endpoint had been achieved.

The data collected did not support the original hypothesis. The data collected showed that the oranges kept at room temperature retained the most vitamin C. The titration mean for the room temperature profile (20.45 mL) was significantly more than the titration means for the heat lamp (15.77 mL), freezer (12.72 mL), garage (11.86 mL) and refrigerator (11.19 mL) temperature profiles.

These findings lead me to conclude that the oranges stored at room temperature retained the most Vitamin C. This result is important to citrus growers, transporters and consumers.